AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A periodic control synchronous system for synchronizing periodic control between a controller connected in a network and devices connected to said network, wherein

said controller includes a global timer and each of said devices comprises a respective global timer controlled through said network, each of said devices further including

an operation period timer which controls an operation period of said device itself; and

a timer synchronous unit ~~which corrects said operation period timer by determining~~ determines a first time difference between a global time indicated by said global timer of said device and a synchronous timing time indicated by said controller ~~at a synchronous timing indicated by said operation period timer~~, and which determines a timer correction value of said operation period timer based on the first time difference, ~~and synchronization of periodic control is performed by generating synchronous timing for periodic control using global time indicated by said global timers of said devices at respective times for each device in accordance with operation of the respective devices~~ wherein said operation period timer is corrected by said timer synchronous unit based on the timer correction value at a synchronous timing indicated by said operation period timer.

2. (Previously Presented) The periodic control synchronous system according to claim 1, wherein

said global timer of said controller is a master global timer,

each of said global timers of said devices is a slave global timer,

said controller comprises a transmitting unit which transmits the synchronous timing time using global time indicated by the master global timer to said devices as a period transfer packet, and

each of said devices comprises a periodic control unit which performs periodic control using the synchronous timing time of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said slave global timer.

Claim 3 (Cancelled).

4. (Currently Amended) The periodic control synchronous system according to claim 1, wherein said timer synchronous unit includes a detecting unit which detects whether the first time difference is within an allowable range, corrects said operation period timer based on the timer correction value when the time difference is within an allowable range, and does not correct said operation period timer when the time difference is outside of the allowable range.

5. (Previously Presented) The periodic control synchronous system according to claim 1, wherein each of said controllers further includes

a control period timer which controls an control period of said controller itself; and

a timer synchronous unit which corrects said control period timer by determining a second time difference between the global time indicated by said global timer of said controller and the synchronous timing time indicated by said controller at a synchronous timing indicated by said control period timer, and determines a timer correction value of said control period timer based on the second time difference.

6. (Currently Amended) The periodic control synchronous system according to claim 5, wherein said timer synchronous unit~~, which~~ detects whether the first time difference is within a specified allowable range, corrects said control period timer based on the timer correction value when the first time difference is within an allowable range, and does not correct said control period timer when the first time difference is outside of the allowable range.

7. (Currently Amended) A periodic control synchronous system for synchronizing periodic control between a controller connected in a network and devices connected to said network, wherein

said controller includes

a first global timer;

a control period timer which controls a control period for periodic control of said controller;

a time stamp providing unit which provides a periodic transfer packet with a time stamp showing a synchronous timing time of the control period ~~designated~~ indicated by said control period timer using global time indicated by said first global timer; and

a transmitting unit which transmits the periodic transfer packet provided with the time stamp to said devices, and

each of said devices includes

a second global timer controlled through said network;

a periodic control unit which synchronizes operation period of said device with the control period using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and global time indicated by said second global timer;

an operation period timer which controls operation period of said device itself; and;

a comparing unit which compares the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet transmitted by said transmitting unit and the global time indicated by said second global timer, and which ~~corrects said operation period timer by determining~~ determines a time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer ~~at the synchronous timing time indicated by said operation period timer~~, and determines a timer correction value of said operation control period timer based on the time difference, wherein said operation period timer is corrected by said comparing unit based on the timer correction value at a synchronous timing indicated by said operation period timer.

8. (Currently Amended) The periodic control synchronous system according to claim 7, wherein

said controller comprises a latch unit which latches the global time of said first global timer, and holds the time latched,

said control period timer latches the global time of said first global timer in said latch unit at the synchronous timing time of the periodic control ~~designated~~ indicated by said control period timer, and

said time stamp providing unit provides the periodic transfer packet with the time stamp having the global time latched by said latch unit, offset by a portion of the control period.

Claim 9 (Cancelled).

10. (Previously Presented) The periodic control synchronous system according to claim 7, wherein said comparing unit, which detects whether the time difference is within an allowable range, corrects said operation period timer based on the timer correction value when the time difference is within the allowable range, and does not correct said operation period timer when the time difference is outside of the allowable range.

11. (Previously Presented) The periodic control synchronous system according to claim 7, wherein said comparing unit resets said operation period timer when the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp.

12. (Previously Presented) The periodic control synchronous system according to claim 11, wherein said comparing unit resets said operation period timer when reaching the synchronous timing indicated by said operation period timer before the global time indicated by said second global timer reaches the synchronous timing time of the periodic control indicated by the time stamp, and resets said operation period timer again later when the synchronous timing time of the periodic control indicated by the time stamp at least reaches the global time indicated by said second global timer.

13. (Previously Presented) The periodic control synchronous system according to claim 11, wherein said comparing unit, which detects whether the time difference between the synchronous timing time of the periodic control indicated by the time stamp compared by said comparing unit and the global time indicated by said second global timer at the

synchronous timing indicated by said operation period timer, is within an allowable range, and does not correct said operation period timer when the time difference is outside of the allowable range.

14. (Previously Presented) The periodic control synchronous system according to claim 11, wherein said comparing unit determines a timer period correction value of said operation period timer from the time difference between the synchronous timing time of the periodic control indicated by the time stamp and the global time indicated by said second global timer, and thereby corrects said operation period timer based on the timer period correction value.

15. (Currently Amended) A periodic control synchronous system for synchronizing periodic control between a controller connected to first and second networks, and devices connected to said first network and devices connected to said second network, wherein

said controller includes

a first global timer for said devices connected to said first network;

a second global timer for said devices connected to said second network;

a control period timer which controls a control period of periodic control of said periodic control synchronous system; and

a time stamp providing unit which provides a periodic transfer packet transmitted periodically to said first and second networks with the time stamp showing a synchronous timing time of the control period ~~designated~~ indicated by said control period timer using global time indicated by said first and second global timers, and

each of said devices connected to said first and second networks includes

a third global timer controlled respectively through said first and second networks;

an operation period time which controls operation period of said device itself; and

a periodic control unit which synchronizes ~~an~~ the operation period ~~of the corresponding device~~ with the control period using the synchronous timing time of the periodic control indicated by the time stamp of the periodic transfer packet and global time

indicated by said third global timer at the synchronous timing indicated by said operation period timer.

16. (Currently Amended) The periodic control synchronous system according to claim 15, wherein said controller includes

a first latch unit which latches the global time of said first global timer, and holds the time latched; and

a second latch unit which latches the global time of said second global timer, and holds the time latched, wherein

said control period timer latches the global time of said first and second global timers in said first and second latch units at the synchronous timing time of the periodic control ~~designated~~ indicated by said control period timer, and

said time stamp providing unit provides the periodic transfer packet with the time stamp having the global times latched by said first and second latch units offset by a portion of the control period.